Before the
FEDERAL COMMUNICATIONS COMMISSION
Washington, D.C. 20554

In the Matter of	)	WT Docket No. 97-12
	)	
Amendment of Amateur Service	)	RM-8737
Rules to Provide For	)	
Greater Use of Spread	)	
Spectrum Communication	)	
Technologies	)	

To: The Commission

REPLY COMMENTS OF TUCSON AMATEUR PACKET RADIO CORPORATION

The Tucson Amateur Packet Radio Corporation ("TAPR") submits these reply comments in response to the above-referenced notice of proposed rule making (the "NPRM") released by the Commission on March 3, 1997.

As demonstrated in TAPR's initial comments, the rule changes proposed in the NPRM represent, for the most part, the logical next step in the regulation of Spread Spectrum ("SS") communications technologies in the Amateur Radio Service. By providing amateur radio operators greater design and operational flexibility, the Commission will help to promote the development and deployment of the next generation of SS technologies.

Nonetheless, in a few areas, the Commission's proposals go too far,[1] and in other areas, not far enough.[2] In addition, several parties have opposed various aspects of the Commission's proposed rule changes on narrow and short-sighted grounds.[3] Thus, and for the reasons set forth more fully below, TAPR urges the Commission to adopt the rule changes proposed in the NPRM with the clarifications and modifications set forth in TAPR's initial comments.

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[1] For instance, the Commission's concerns about the need for automatic power control are unfounded. See, e.g., Comments of Phil Karn ("KA9Q"); Comments of Lyle Johnson ("WA7GXD. Consequently, any suggestion that extreme measures such as mandatory automatic power control should be rejected.

[2] As discussed more fully below, the Commission should allow the use of SS emissions in all amateur radio bands from 50 MHz.

[3] See, e.g., Comments of Metricom (continuing its assault on Part 97 SS use of the ISM bands); Comments of Part 15 Coalition (same).

DISCUSSION

I. The Parties To This Proceeding Support the Commission's Proposed Less Restrictive SS Rules.

In general, all parties support the Commission's decision to delete sections 97.311(c) and (d), in order to permit SS emissions and spreading codes that are not currently authorized. Elimination of the rule that dictates specific spreading codes in necessary to facilitate further experimentation and deployment of SS technology in the amateur radio service. In particular the removal of the provision that restricted the use of hybrid SS emissions will open up potentially new areas of interesting experimentation that have not been allowed for over fifteen years now.

II. The Parties To This Proceeding Support the Relaxation of the SS Record Keeping Requirements

There appears to be a consensus of commenters which does not agree with the Commission's decision to allow sections 97.311(e) and (f) to stand as written. Both sections place a significant record-keeping burden on any operator who wishes to make use of the SS emission mode. While these sections may have made sense back in 1985, twelve years later all they serve to do is to present a serious impediment to any amateur operator who wishes to experiment and deploy this mode. TAPR therefore asks the Commission to follow the directions of the commenters and now establish parity between SS and all of the other emission modes (including pulse) and delete the burdensome provisions and requirements of these sections

III. Some Parties To This Proceeding Support the Deletion of the 100 W Power Limit for SS

Several commenters have agreed with TAPR's position that the limit on transmit power to 100 watts of section 97.311 should also be deleted. While TAPR does feel that 100 watts of power is more than enough for most terrestrial SS operations, this limit may present problems for some of the more interesting applications in the service today such as EME (Earth-Moon-Earth) operations. It would appear that the 100 watt limit was imposed back in 1985 out of a concern for limiting the range of possible SS interference, this concern appears groundless in the operating environment that we now face today. TAPR therefore asks the

Commission to strike this provision and allow SS emissions that same transmitter power levels allowed for the other emission modes authorized for the service.

IV. The Parties To This Proceeding Support the Deletion of the Automatic Power Control Proposal

There appears to be general disagreement by the commenters with the proposed automatic power control ("APC") provision of section 97.311(g). Although TAPR supported the ARRL proposal for this provision in the comments and reply comments that it filed in RM-8737, it no longer feels that this provision should become a part of the rules governing SS emissions. Further discussion and experimentation that has taken place since the petition phase of this proceeding has convinced TAPR that the implementation of this provision would impose a serious handicap on the future development of this emission mode. As was pointed out by the comments of Phil Karn, KA9Q, the idea of including the concept of APC in the League's Petition of December, 1995, originated with him as a member of the ARRL's Future Systems Committee. KA9Q has now gone on record in these proceedings as agreeing that APC is not workable under all circumstances and should be dropped as a requirement for Amateur SS communications. While TAPR agrees that technically it is simple to control the output power of a transmitter, it is quite another matter to make this control automatic and foolproof over the wide range of applications and uses that are common today in the service. For instance, the implementation of this provision would make it impossible to use SS emissions in the point-to-multipoint packet radio networks that are common in the service today because it would be difficult to transmit a single packet which would not exceed the Eb/N0 level at the nearest station. TAPR therefore asks the Commission to strike the proposed automatic power control language of this section. Several commenters, including TAPR feel that the provisions of section 97.313(a), which limits the power level to the minimum required to maintain communications is all that is necessary to cover the concerns which prompted this proposed rule change.

V. Some Parties To This Proceeding Support the Use of SS In Amateur Radio Bands Above 50 MHz

Several commenters have indicated support for TAPR's position that the Commission allow SS emissions on all amateur radio bands above 50 MHz. As we have stated earlier, TAPR feels that the Commission's rules for SS should go no further than to set a maximum transmitter output power level and to set reasonable

limits on spurious emissions outside the amateur radio bands. Conventions for all other parameters of operation such as operating frequencies, modulation method, bandwidths, protocols, etc. are best left to the development of the amateur radio community itself. Such an approach would be in line with the stated policy of the Commission itself in the NPRM to develop rule changes which are "...consistent with our policy of encouraging greater spectrum flexibility by enabling licensees to introduce innovative technologies and to respond quickly to demands for new and different services and applications, without administrative delays". TAPR feels that SS technology will provide for such innovation in the service and has great applicability to amateur bands below 70 cm (SS now only being allowed on bands 70 cm and above).

VI. The Parties To This Proceeding Support the Removal of the Narrowband ID Requirement for SS

There was general support among the commenters which supported TAPR's position that the station identification requirements of section 97.119(b)(5) should be deleted. The interference and harm to the band in which an SS station is operating that would be caused by a requirement to use a CW identification far outweighs the benefits that would accrue for monitoring purposes from the use of such an ID. Further, it is vital to avoid an ID requirement that would in itself cause interference even when the associated SS emission does not. TAPR feels that it would be better for the amateur radio community to develop approaches for handling the necessary functions of monitoring and identification of SS emissions.

Conclusion

With the modifications and clarifications described above and in TAPR's initial comments, TAPR generally supports the rule changes proposed by the Commission in the NPRM.

Respectfully submitted,

THE TUCSON AMATEUR PACKET RADIO CORPORATION

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